Federation Account Allocation Committee (FAAC) Disbursement Cycles, Liquidity Surges, and Naira Volatility in Nigeria.

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ABSTRACT

The recurring disbursement of revenues through the Federation Account Allocation Committee (FAAC) represents one of the largest sources of fiscal liquidity injections in Nigeria, with important implications for monetary management and exchange rate stability. This study investigates the effects of FAAC disbursement cycles on banking system liquidity and naira exchange rate volatility using monthly data from January 2015 to December 2025 and the Autoregressive Distributed Lag (ARDL) modelling framework. The analysis distinguishes between aggregate FAAC allocations, federal government allocations, and subnational allocations to identify the primary transmission channels through which fiscal flows affect macroeconomic stability. The findings show that FAAC disbursements are a significant driver of banking system liquidity, although their effects emerge predominantly through lagged transmission mechanisms rather than contemporaneously. While current-period disbursements exhibit weak immediate effects, lagged allocations exert strong positive and statistically significant impacts on liquidity, indicating that fiscal injections gradually permeate the financial system through expenditure and deposit channels. Subnational allocations exert the largest long-run influence on liquidity, reflecting higher spending propensities, weaker cash-management practices, and limited fiscal buffers at the state and local government levels. The results further reveal that FAAC disbursements contribute significantly to exchange rate volatility in the short run, with subnational allocations exerting the strongest effects. However, no evidence of a long-run relationship is found between FAAC disbursements and exchange rate volatility, suggesting that naira instability associated with fiscal inflows is primarily liquidity-driven and transitory rather than structural. The evidence therefore indicates that exchange rate pressures in Nigeria arise largely from the timing, composition, and absorption of FAAC-induced liquidity shocks. The study concludes that effective exchange rate stabilization requires managing liquidity at its fiscal source rather than relying solely on conventional monetary interventions. Accordingly, it recommends stronger fiscal–monetary coordination, FAAC-integrated liquidity forecasting, pre-emptive sterilization around disbursement cycles, and improved subnational cash-management frameworks to mitigate recurrent liquidity surges and enhance macroeconomic stability.

Keywords: FAAC Disbursements; Banking System Liquidity; Exchange Rate Volatility; Fiscal–Monetary Coordination; Fiscal Decentralization; Nigeria. **JEL Classification:** E52, E58, F31, H77, E44.

BACKGROUND

The Federation Account Allocation Committee (FAAC) is the statutory body responsible for administering these distributions monthly. The Committee comprises representatives from key fiscal and monetary institutions, including the Federal Ministry of Finance, the Central Bank of Nigeria (CBN), and major revenue-generating agencies. Through FAAC, federally collected revenues—derived from both oil and non-oil sources—are allocated according to an approved revenue-sharing formula. Notably, oil revenues—including crude oil proceeds, petroleum profits tax, royalties, and gas earnings—remain the dominant component of government revenues, while non-oil sources such as companies' income tax, value-added tax, and customs duties provide supplementary contributions (ATSWA, 2009; CBN, 2025). The derivation principle further ensures that oil-

producing states receive a statutory share of resource revenues in recognition of the costs associated with extracting the resources.

Despite the increasing importance of FAAC disbursements in Nigeria's macroeconomic management framework, the existing literature has largely concentrated on their implications for fiscal sustainability, public expenditure performance, intergovernmental fiscal relations, and economic growth. Comparatively little attention has been devoted to understanding the monetary transmission consequences of recurrent fiscal transfers, particularly their effects on banking system liquidity and foreign exchange market dynamics. Yet, in an economy characterised by high fiscal dominance, persistent liquidity overhangs, and recurrent exchange rate pressures, understanding the monetary implications of FAAC disbursements has become increasingly important for both policy formulation and macroeconomic stabilization. The omission is particularly significant because FAAC allocations constitute one of the largest and most predictable sources of liquidity injections into the Nigerian economy. Unlike conventional fiscal expenditures that may be staggered over time, FAAC releases are concentrated monthly disbursements that simultaneously increase deposit liabilities across the banking system and expand spending capacity among federal, state, and local governments. Consequently, these allocations represent exogenous liquidity shocks with potentially important implications for money supply growth, inflationary pressures, and foreign exchange market demand. While recent policy discussions have acknowledged the relationship between FAAC releases and excess banking system liquidity, rigorous empirical evidence on the mechanisms through which these fiscal injections affect exchange rate volatility remains limited.

This study addresses this important gap by examining the transmission mechanism linking FAAC disbursement cycles, banking system liquidity, and exchange rate volatility in Nigeria using monthly data and an Autoregressive Distributed Lag (ARDL) framework. Specifically, the study investigates whether recurrent fiscal injections transmitted through FAAC allocations contribute to foreign exchange market instability by generating liquidity conditions that stimulate demand for foreign currency. In doing so, the study extends the literature beyond the conventional focus on fiscal transfers as instruments of redistribution and economic development to evaluate their broader macro-financial consequences.

The study makes three principal contributions to the literature. First, it provides one of the few empirical assessments of the liquidity-channel transmission mechanism through which fiscal decentralisation influences exchange rate outcomes in Nigeria. Second, by distinguishing between aggregate FAAC allocations, federal government transfers, and subnational allocations, it identifies the relative importance of different tiers of government in generating liquidity-induced exchange rate pressures. Third, it contributes to the growing literature on fiscal-monetary interactions by demonstrating that exchange rate volatility may arise not only from external shocks and structural imbalances but also from domestic fiscal liquidity cycles associated with intergovernmental revenue transfers. Consistent with findings reported in the departmental study, subnational allocations appear to constitute the most important fiscal channel through which liquidity pressures transmit to the foreign exchange market.

Beyond its academic contribution, the study offers important policy insights for monetary and fiscal authorities. By quantifying the role of FAAC-induced liquidity shocks in shaping exchange rate dynamics, the findings provide an empirical basis for strengthening liquidity forecasting frameworks, designing more effective sterilisation operations, and improving fiscal-monetary policy coordination. The results are expected to contribute to ongoing policy discussions regarding exchange rate management, inflation control, and macroeconomic stabilization in Nigeria's evolving post-reform economic environment.

The remainder of the paper is structured as follows. Section Two reviews the relevant theoretical and empirical literature. Section Three outlines the methodological framework and data sources. Section Four presents and discusses the empirical findings. Section Five concludes and offers policy recommendations.

LITERATURE REVIEW

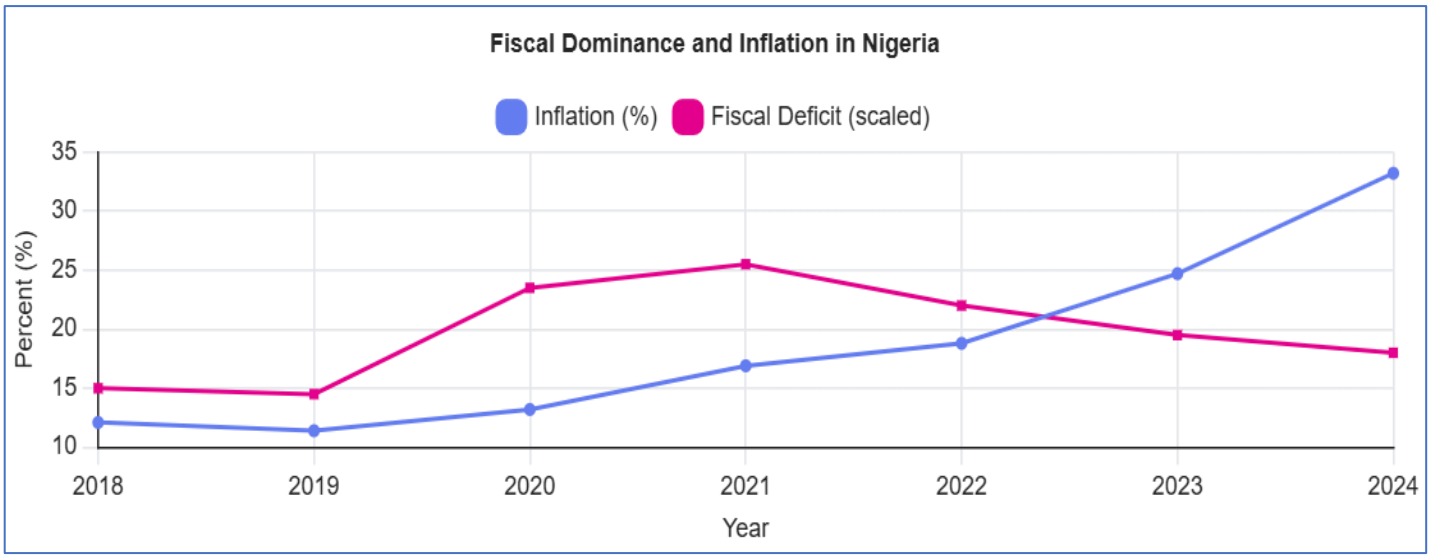
Stylised fact

Impact of FAAC

Although FAAC allocations are indispensable for sustaining fiscal operations at all levels of government, they also constitute significant and periodic injections of liquidity into the domestic economy. Recent evidence suggests that monthly FAAC disbursements averaged between ₦1.5 trillion and ₦2.0 trillion between 2024 and 2025, underscoring their significant macroeconomic impact (FAAC Communiqué, 2024–2025). These cyclical disbursements have been empirically linked to surges in banking system liquidity, thereby contributing to rapid expansion in broad money supply (M2). The Central Bank of Nigeria has consistently identified fiscal injections—particularly FAAC releases—as a major source of excess liquidity, which complicates monetary management and weakens policy transmission mechanisms (CBN, 2025). The macroeconomic implications of these liquidity surges are particularly evident in inflation and exchange rate dynamics. Despite sustained monetary tightening, including an increase in the monetary policy rate to 27.5 per cent in 2025, inflation remained persistently elevated above 22 per cent, reflecting strong demand-side pressures associated with liquidity expansion. More importantly, FAAC disbursement cycles have been closely associated with short-term volatility in the foreign exchange market. Periods of large fiscal injections tend to coincide with increased demand for foreign currency, exerting pressure on the naira and contributing to episodes of sharp depreciation observed between 2023 and 2025. This pattern suggests that fiscal-induced liquidity surges undermine exchange rate stability and dilute the effectiveness of conventional monetary policy tools.

Fiscal Dominance in Nigeria

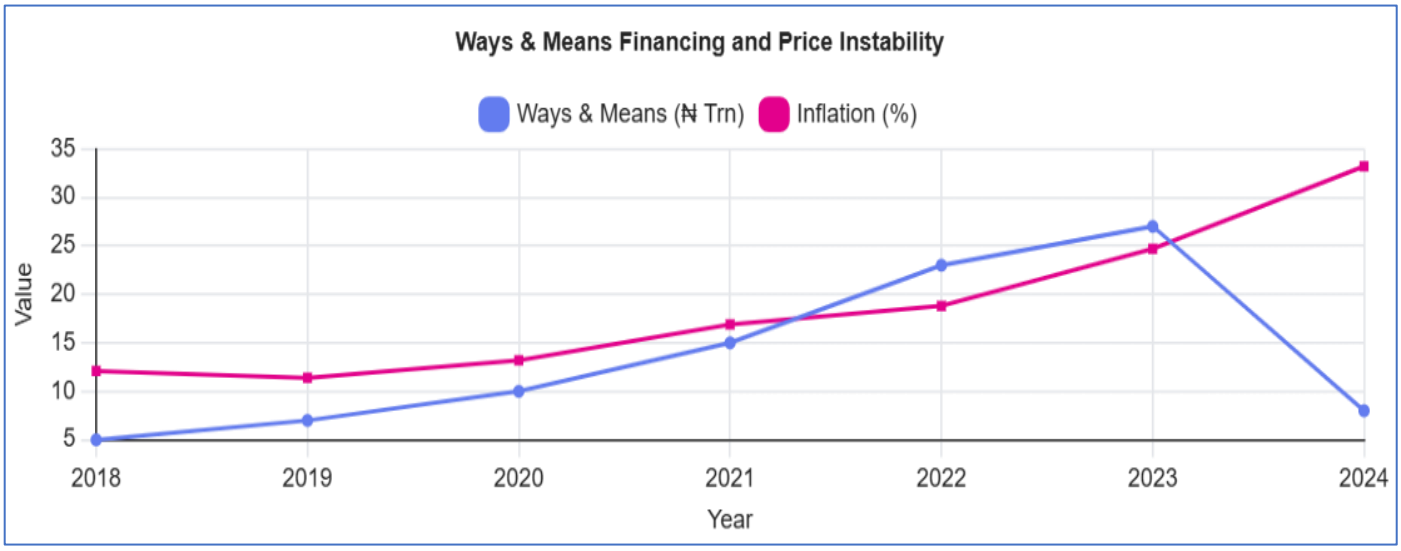
Fiscal dominance occurs when the financing needs of fiscal authorities constrain or override the central bank's objectives of price stability. In Nigeria, this phenomenon became pronounced between 2020 and 2023, when widening fiscal deficits were increasingly financed through CBN Ways and Means advances and domestic liquidity creation. The graph shows that as Nigeria's fiscal deficit (as % of GDP) deepened, particularly during the COVID-19 shock and its aftermath, inflation rose sharply from about 13 per cent in 2020 to over 33 per cent by 2024, indicating strong fiscal–price linkages. This pattern is consistent with empirical evidence from the CBN, Trading Economics, and IMF sources that persistent deficit monetisation weakens monetary control and fuels inflationary pressures.



Monetary Stability and the Role of Policy Reversal

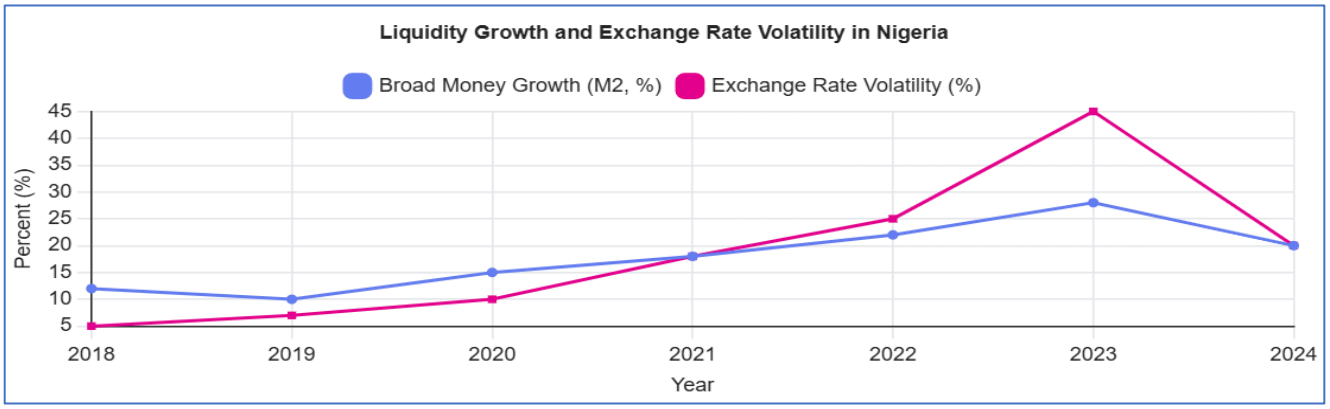
The graph below highlights the relationship between Ways and Means financing and inflation dynamics. Between 2019 and 2023, Ways and Means balances surged from about ₦7 trillion to nearly ₦27 trillion, coinciding with accelerating inflation and heightened naira volatility. This illustrates how monetised deficits expanded liquidity faster than real output, undermining monetary stability. However, the sharp decline in Ways and Means by 2024, following securitisation and tighter coordination between fiscal and monetary authorities,

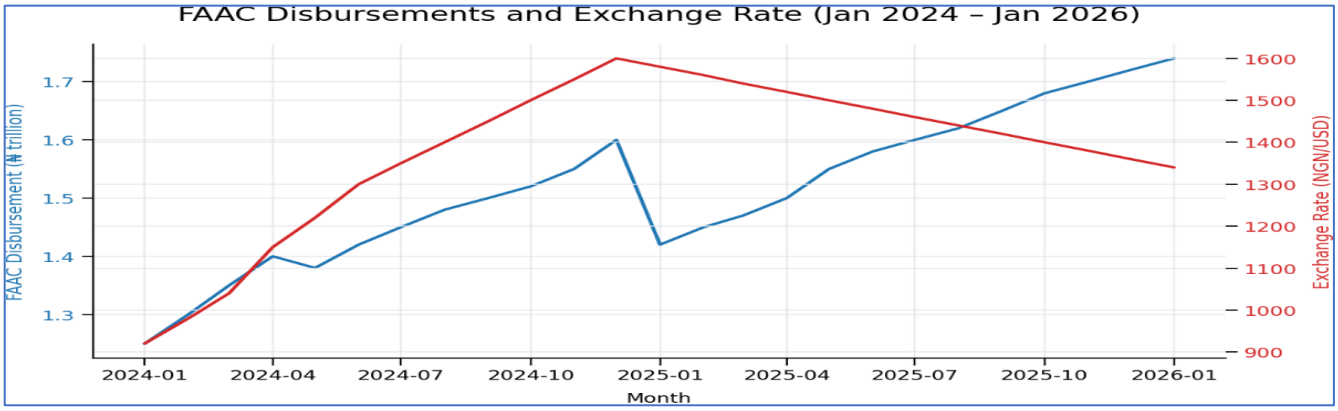
aligns with the gradual return of disinflation observed in late 2024–2025. This supports the view that restoring monetary stability in Nigeria.



Liquidity Effects and Exchange Rate Volatility in Nigeria

The graph shows a strong positive link between rapid domestic liquidity growth (M2) and exchange rate volatility in Nigeria between 2018 and 2024, with liquidity surges, especially from 2020 to 2023. driving sharp Naira instability. Excess liquidity, largely from deficit monetisation and FAAC disbursements, spills into FX markets in an import-dependent economy, increasing dollar demand and volatility. The easing in 2024 highlights that tighter liquidity management can help stabilise the naira, confirming that exchange rate volatility is largely a monetary liquidity outcome rather than purely external shocks. CBN (2024), and Paul (25).





From 2024 through early 2026, movements in FAAC disbursements and the exchange rate reveal a clear liquidity–FX linkage. In 2024, steadily rising FAAC allocations coincided with rapid naira depreciation,

indicating that large fiscal injections expanded excess system liquidity and spilt into heightened foreign-exchange demand. In early 2025, a brief moderation in FAAC disbursements aligned with temporary exchange-rate stabilisation, suggesting a short-lived easing in liquidity pressure. However, from mid-2025 to January 2026, a renewed upward trend in FAAC releases was matched by continued sensitivity of the naira, reinforcing the view that Nigeria's monthly FAAC disbursements function as recurrent liquidity shocks that amplify exchange-rate pressure in an import-dependent economy.

Country Experiences

Country	System Description	Liquidity Effects	Policy Response	Key Lesson
United States	Highly centralised electronic fiscal cash system via the Treasury General Account at the Federal Reserve	Large, predictable disbursements temporarily increase bank reserves and liquidity, affecting short-term intereates	Federal Reserve uses open market operations, reverse repos, reserve management, strong Treasury–Fed coordination and cash forecasting	Centralised electronic payments can coexist with stability when supported by strong monetary sterilisation and coordination
United Kingdom	Centralised cash flows under HM Treasury via Exchequer account at Bank of England	Quarterly sending peaks and welfare payments create predictable liquidity bunching	Advanced cash flow forecasting, Treasury bills issuance, coordination with the Bank of England, and staggered disbursement	Accurate forecasting and staggered payments reduce liquidity volatility
China	Central revenue collection with large intergovernmental transfers to provinces via bank transfers	Predictable transfers lead to medium-term liquidity accumulation, complicating monetary control and causing inflation pressures	Tightened local borrowing constraints, strengthened fiscal rules, and improved coordination with the central bank	Large transfers require strict subnational discipline and monitoring
Brazil	Centralised revenue with mandated transfers to states and municipalities via commercial banks	Commodity booms caused liquidity surges at subnational levels, increasing inflation and exchange rate volatility	Fiscal Responsibility Law, expenditure ceilings, transparency, and central bank sterilisation	Strict fiscal rules help contain procyclical liquidity effects
India	Central revenues are transferred via a TSA-based electronic system to states	End-of-year spending surges and uneven absorption cause liquidity spikes and idle funds	RBI uses liquidity adjustment tools (repos, reverse repos), and improved TSA operations	TSA and active monetary tools effectively manage liquidity surges
South Africa	Centralised revenue with transfers via the electronic banking system managed by the National Treasury	Liquidity pressures are moderate but can be amplified by portfolio flows during shocks	Strong fiscal planning, coordination with the central bank, credible monetary framework	Institutional strength reduces liquidity instability
Indonesia	Central revenue collection with transfers to subnational governments (general and specific funds)	Early decentralisation led to idle balances and persistent liquidity overhangs	Improved transfer timing, better forecasting, stronger spending capacity, and refined transfer rules	Reducing idle funds and improving efficiency is as important as timing disbursements

Oil and Mineral Producing Countries

Country	Key Characteristics	Mechanism/Strategy	Outcomes/Effects
Norway	Strong institutional framework; petroleum-based economy	Saves oil revenues in Government Pension Fund Global; limits domestic spending	Reduced exchange rate pressure, controlled liquidity, stable long-term fiscal policy
Saudi Arabia & UAE	Oil-dependent economies with large reserves	Use stabilisation funds, reserves, and sovereign wealth funds	Improved ability to stabilise currencies, maintain liquidity, cushion fiscal shocks
Venezuela & Angola	Heavy reliance on oil with weak diversification	High spending during oil booms; limited revenue sterilisation	Inflation, exchange rate distortions, fiscal crises during price declines
Botswana	Diamond-dependent economy	Prudent fiscal discipline; accumulation of financial reserves	Long-term macroeconomic stability despite commodity dependence

THEORETICAL AND EMPIRICAL PERSPECTIVES

Theoretical Review

This study is anchored on two complementary macroeconomic theories: Irving Fisher's Quantity Theory of Money (1911) and Michael Woodford's Fiscal Theory of the Price Level (1995). While Fisher's framework emphasises the role of money supply in determining price levels, Woodford's Fiscal Theory highlights the dominance of fiscal policy and government solvency in shaping inflation and exchange rate outcomes. The integration of both theories provides a robust foundation for explaining how FAAC disbursement cycles, as recurrent fiscal liquidity shocks in Nigeria, influence inflation dynamics and exchange rate volatility. Fisher's Quantity Theory of Money is expressed as: MV = PT M= Money supply, V= Velocity of circulation, P= Price level, T= Volume of transactions (or output) The theory posits that, assuming relative stability in velocity and output in the short run, changes in money supply translate proportionately into changes in the price level. In the Nigerian context, FAAC disbursements act as periodic injections into the money supply (M). Once distributed to federal, state, and local governments, these funds are rapidly spent, increasing liquidity and transactional velocity in the economy. Given Nigeria's structural rigidities, such as import dependence, supply bottlenecks, and weak productive capacity, this liquidity surges tend to generate inflationary pressures rather than output expansion. Rising inflation, in turn, increases demand for foreign goods and foreign exchange, exerting downward pressure on the naira.

Based on Fisher's framework, the study specifies that:

EXR_t = f(FAAC_t, MS_t, INF_t)

Where:

FAAC and MS (money supply) represent monetary expansion, and INF (inflation) captures the price-level adjustment mechanism. The FAAC expected sign is positive as FAAC increases, FX demand rises, and the Naira depreciates. The MS expected sign is positive as the money supply increases, inflation rises, and the exchange rate depreciates. The INF expected sign is positive, as inflation reduces currency value, it leads to a higher exchange rate.

Furthermore, Michael Woodford's Fiscal Theory of the Price Level (FTPL, 1995) argues that the price level is ultimately determined by the government's intertemporal budget constraint rather than by money supply alone, implying that prices adjust to ensure the real value of government liabilities equals the present value of future fiscal surpluses. Unlike the Quantity Theory, FTPL emphasises that price stability depends fundamentally on fiscal discipline and credibility, rather than money supply alone.In Nigeria, FAAC disbursements significantly

influence fiscal behaviour at all tiers of government. These funds often finance recurrent expenditures without corresponding increases in revenue generation, resulting in persistent fiscal deficits. Under FTPL, when such fiscal imbalances are perceived to be unsustainable, rational economic agents anticipate Future monetisation of deficits, or Inflationary erosion of public debt. As a result, prices and exchange rates adjust immediately, even before actual monetary expansion occurs. This is particularly relevant in Nigeria, where: Fiscal coordination is weak, revenue is highly oil-dependent, and government spending is procyclical.

To capture Woodford's framework, the model incorporates fiscal variables:

EXR_t = f(GOVEXP_t, FISCALBAL_t, FAAC_t) Where: GOVEXP = Government expenditure (post-FAAC spending channel). FISCALBAL = Fiscal balance (deficit/surplus indicator)

GOVEXP has expected a positive sign as higher spending leads to demand pressure with inflation and FX depreciation. While FISCALBAL has expected a negative sign Fiscal surplus stabilises currency; deficits weaken it.

Empirical Review

Empirical studies on revenue allocation, fiscal decentralisation, and macroeconomic performance in Nigeria have produced mixed and sometimes conflicting outcomes, reflecting variations in methodological approaches, time coverage, and institutional contexts. A substantial body of literature has examined the relationship between federation account allocations and economic growth in Nigeria, with divergent findings across tiers of government.

Usman (2011) analysed the effect of the revenue allocation formula on Nigeria's economic growth over the period 1960–2010, using ordinary least squares (OLS) and correlation techniques. The study found that allocations to the federal and local governments significantly contributed to economic growth, while allocations to state governments did not exert the expected positive influence (Usman, 2011). Similarly, Dagwom (2013), employing an error correction model (ECM) and Granger causality tests for the period 1993–2012, reported that while federal and local government allocations positively influenced economic growth, state government allocations had a negative effect. Ejike (2021), using OLS within a multiple regression framework for the period 1984–2019, further corroborated these findings by showing that federal and local government allocations significantly enhanced economic growth, whereas state government allocations exerted a significant negative effect. The study attributed this outcome to inefficiencies and misappropriation of funds at the state level and recommended a more performance-driven allocation framework.

In contrast, other empirical studies provide opposing evidence. Ohiomu and Oluyemi (2017), applying cointegration and ECM techniques over the period 1984–2015, found that allocations to state governments had a positive and significant effect on economic growth, while local government allocations negatively impacted growth. Similarly, Ituma, Uguru, and Awa (2023) revealed that state government allocations significantly promoted economic growth, whereas federal allocations had a negative effect and local government allocations were insignificant. Further insights are provided by Ojide and Ogbodo (2015), who employed a distributed lag model over the period 1970–2009. Their findings indicate that federal government allocations and internally generated revenue (IGR) significantly contributed to economic growth. Additionally, Omodero, Ihendinihu, and Dandago (2019) demonstrated that the effectiveness of revenue allocation is context-dependent, as federal allocations had a positive impact on growth in the post-democratic era but were insignificant or negative prior to democratic restoration. The Nigerian evidence suggests that revenue allocation can positively influence economic growth, but its effectiveness varies across tiers of government, institutional quality, fiscal discipline, and accountability mechanisms play crucial roles. And persistent inefficiencies and mismanagement remain major constraints.

Beyond Nigeria, empirical studies from other countries provide additional insights into the relationship between fiscal arrangements and economic performance. Faridi (2011), using autoregressive modelling for Pakistan (1972–2009), found that both revenue and expenditure decentralisation positively influenced economic growth,

suggesting that fiscal autonomy enhances macroeconomic performance. Similarly, Gemmell et al. (2013), in a panel study of 23 OECD countries using a pooled mean group (PMG) estimator, reported that revenue decentralisation promotes economic growth, whereas expenditure decentralisation may constrain growth. Country-specific studies further highlight the importance of revenue composition. Muriithi (2013), examining Kenya (2003–2011), found that income tax, value-added tax (VAT), and non-tax revenues positively influenced growth, while import and excise duties had negative effects. Likewise, Alexander (2015), using data for Ghana (1999–2014), showed that indirect taxes and customs revenues positively affected economic growth, while direct taxes were insignificant. The broader empirical literature indicates that: fiscal decentralisation can enhance growth when properly implemented, the composition and efficiency of revenue sources matter more than aggregate revenue, and institutional frameworks determine whether fiscal policies translate into improved economic outcomes.

A growing strand of literature focuses on the macroeconomic transmission of fiscal actions, particularly through liquidity, inflation, and exchange rate channels. Blanchard and Perotti (2002), using a structural vector autoregression (SVAR) framework, found that government spending shocks generate immediate liquidity effects, influencing interest rates and exchange rate movements. Similarly, Ilzetzki, Mendoza, and Végh (2013), in a cross-country panel SVAR analysis, demonstrated that expansionary fiscal shocks in developing economies lead to exchange rate depreciation and increased volatility, particularly where monetary policy is unable to fully sterilise liquidity injections. Furthermore, Duffie and Krishnamurthy (2016), using high-frequency financial data, showed that large government cash disbursements create short-term liquidity surges, resulting in increased exchange rate and financial market volatility when such liquidity is not adequately sterilised. This strand highlights that: fiscal disbursements act as liquidity shocks, liquidity surges transmit rapidly into foreign exchange markets, and weak coordination between fiscal and monetary policy exacerbates exchange rate instability

Gaps in the Literature.

In summary, the reviewed literature on federation account allocations, fiscal decentralisation, and economic performance, both within Nigeria and across other economies, is marked by significant empirical and conceptual gaps. First, there is no clear consensus on the growth effects of revenue allocation across the federal, state, and local governments, as empirical findings remain inconsistent and sometimes contradictory, particularly regarding the role of state government allocations. And secondly, existing studies give limited empirical attention to transmission mechanisms and macroeconomic stability effects, with short-run impacts of fiscal actions on liquidity, inflation, exchange rates, and financial markets rarely integrated with long-run growth analyses. This disconnect leaves an incomplete understanding of how fiscal decentralisation and fiscal shocks jointly shape sustainable economic growth and macroeconomic stability.

METHODOLOGY

Data Description and Sources

The study employed an ex post facto research design, relying on historical data that were already available at the time of investigation. Data on revenue allocations to the federal, state, and local governments, including the 13 per cent derivation revenue, were sourced from the Federation Account Allocation Committee (FAAC) communiqués of the Federal Ministry of Finance, Abuja. Monetary variables data are money supply, inflation, and exchange rate, were obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin. Control variables used in the models are M3, the exchange rate and the inflation rate. All variables were compiled from monthly data spanning January 2015 to December 2025

Model Specification

The model chosen for this study is expressed in a general form as follows:

For any dependent variable Y_t, the general ARDL $(p, q_1, q_2, \dots, q_k)The$ Model is specified as:

$$Y_t = \alpha_0 + \sum_{i=1}^{p} \alpha_i Y_{t-i} + \sum_{j=0}^{q_1} \beta_j X_{1,t-j} + \sum_{j=0}^{q_2} \gamma_j X_{2,t-j} + \cdots + \sum_{j=0}^{q_k} \delta_j X_{k,t-j} + \varepsilon_t$$

It is expressed in its explicit form as follows:

The model is set up with two major blocks, each of which has three key equations:

Model 1: When the banking system liquidity is considered as the dependent variable Block A: Liquidity Impact (BSL as dependent variable)

Which FAAC channel drives liquidity surges most strongly?

Model 1a: Aggregate FAAC

$$\ln(BSL_t) = f(\ln(AggFAAC_t), \ln(M3_t), \ln(EXC_t))$$

Model 1b: Federal Government FAAC

$$\ln(BSL_t) = f(\ln(FGFAAC_t), \ln(M3_t), \ln(EXC_t))$$

Model 1c: Subnational FAAC (States + LGs)

$$\ln(BSL_t) = f(\ln(SNFAAC_t), \ln(M3_t), \ln(EXC_t))$$

Model 2: When the exchange rate volatility is considered as the dependent variable Block B: FX Volatility Impact (EXCV as dependent variable)

Which FAAC channel ultimately drives naira volatility the most?

Model 2a: Aggregate FAAC

$$EXCV_t = f(\ln(AggFAAC_t), \ln(BSL_t), INF_t, \ln(M3_t))$$

Model 2b: Federal Government FAAC

$$EXCV_t = f(\ln(FGFAAC_t), \ln(BSL_t), INF_t, \ln(M3_t))$$

Model 2c: Subnational FAAC

$$EXCV_t = f(\ln(SNFAAC_t), \ln(BSL_t), INF_t, \ln(M3_t))$$

Where:

FGFAAC = Federal Account Allocation to Federal Government

SNFAAC = Federal Account Allocation to State and Local Governments

M3 = Money Supply

EXC = Nominal Exchange Rate

EXCV = Exchange Rate Volatility

INF = Inflation Rate

β = Determines the relationship between the independent variable $X$and the dependent variable by estimating the regression slope, which measures the magnitude of change in Yresulting from a unit change in X

μ i = Normally distributed error term

Computing Exchange Rate Volatility

Since its monthly data, the most appropriate and transparent volatility measure for policy work is 12-month rolling volatility of monthly log returns

Step 1: Monthly log returns

$$r_t = 100 \times \ln\left(\frac{e_t}{e_{t-1}}\right)$$

Step 2: Rolling volatility

$$\sigma_t = \sqrt{\frac{1}{11}\sum_{i=0}^{11}(r_{t-i} - \bar{r}_t)^2}$$

- Units: per cent
- Interpretation: annualised monthly FX volatility
- Standard in IMF FPAS / QPM / EXC environments

Why Volatility Is "Missing" for Early 2015 (This Is Normal)

- A 12-month rolling measure requires 12 observations
- Therefore:

2015M1–2015M12 → volatility is undefined (NA). 2016M1 onward → volatility is well-defined

Estimation Technique

Unit Root Test

The study employed the Augmented Dickey-Fuller unit root test to establish the stationarity of the data, thereby avoiding spurious regression results. Gordon (1996) suggests that economic time series data are typically non-stationary and can only become stationary at the first difference level or even at a higher level, which may sometimes necessitate the use of logs. The significance of the unit root test is to circumvent misleading estimation results.

Cointegration and Long-Run Relationships

In the context of PF FAAC disbursement flows, liquidity conditions, and exchange-rate movements are expected to interact persistently over time; thus, testing for cointegration is essential. Cointegration analysis allows for the distinction between short-run dynamics and long-run equilibrium effects, which is particularly relevant in assessing how periodic fiscal injections from FAAC influence monetary aggregates and Naira volatility beyond transitory shocks.

The Autoregressive Distributed Lag (ARDL) Approach

Using a methodological approach grounded in time-series econometrics, the study first conducted unit root tests, which revealed that all variables were integrated of order I(0) and/or I(1), with none integrated of order I(2). This mixed order of integration justified the application of the Autoregressive Distributed Lag (ARDL) modelling technique proposed by Pesaran, Shin, and Smith (2001), which is well-suited for examining both short-run and long-run relationships under such conditions. Consistent with a priori expectations, fund allocations across the three tiers of government were anticipated to exert a positive influence on economic growth in Nigeria. Accordingly, the ARDL framework was adopted not only for its econometric robustness but also for its relevance in capturing the dynamic interactions between FAAC disbursement cycles, liquidity conditions, and Naira volatility within Nigeria's fiscal–monetary structure.

A Priori Expectations and Economic Interpretation

In line with prior theoretical expectations, fund allocations to federal, state, and local governments are expected to be positive and significant. These allocations represent fiscal injections into the economy that can stimulate aggregate demand, expand liquidity, and influence macroeconomic outcomes.

Diagnostic and Robustness Tests

First, bounds testing for cointegration confirms whether a stable long-run relationship exists among FAAC disbursements, liquidity conditions, and exchange-rate volatility despite the I(0)/I(1) mix. Secondly, serial correlation tests (such as the Breusch–Godfrey LM test) ensure that residuals are not autocorrelated, which is critical for unbiased inference in dynamic models. Also, heteroskedasticity tests (e.g., Breusch–Pagan or White tests) assess whether error variances are constant, given Nigeria's highly volatile fiscal and FX environment. Fourth, parameter stability tests, notably CUSUM and CUSUMSQ, examine whether estimated coefficients remain stable across periods of fiscal shocks and policy shifts, which is essential when analysing FAAC cycles. Finally, robustness checks, including alternative lag structures and variable definitions, help confirm that the core results linking FAAC-driven liquidity shocks to naira volatility are not sensitive to model specification, thereby strengthening the credibility of the empirical findings.

Empirical Results and Discussion of Findings

Unit Root Test Result

Variable	ADF (Level)	ADF (Δ1)	Order
AggFAAC	1.77 ***	-8.87 *	I (1)
FGFAAC	1.80 ***	-16.75 *	I (1)
SNFAAC	-0.97 ***	-14.20 *	I (1)
M3	-0.02 ***	-5.46 *	I (1)
EXC	-1.30 ***	-9.61 *	I (1)
INF	-0.94 ***	-6.54 *	I (1)
EXCV	-2.38 ***	-5.20 *	I (1)
BSL	-6.44 *	_	I (0)

The Augmented Dickey–Fuller (ADF) unit root test results indicate mixed orders of integration among the variables. Specifically, BSL variable was found to be stationary at level, denoted as I(0), as its ADF test statistic was more negative than the critical values and its p-value was less than 0.05, leading to the rejection of the null hypothesis of a unit root. In contrast, the remaining six variables, namely, Aggfaac, fgfaac, snfaac, m3, exc, inf and excv were non-stationary at level but became stationary after first differencing, indicating that they are

integrated of order one, I(1). This suggests the presence of a combination of I(0) and I(1) variables in the model, which justifies the use of estimation techniques suitable for mixed orders of integration, such as the ARDL approach.

Descriptive Statistics and Stylised Facts

AGGFAAC	FGFAAC	SNFAAC	BSL	M3	EXC	EXCV
Mean	714.6591	299.2271	415.4320	4.024500	568.3672	3.154530
Median	582.7600	267.7950	318.3500	5.447687	371.0000	1.983500
Maximum	2089.110	834.8100	1257.120	8.096421	1670.470	10.98200
Minimum	263.2700	118.0800	145.1900	-6.496639	181.7800	0.000000
Std. Dev.	390.5443	133.2838	260.6930	3.695366	466.6778	2.784738
Skewness	1.741373	1.901995	1.682734	-1.842063	1.428567	1.032541
Kurtosis	5.427283	6.897319	4.902583	5.013957	3.351080	2.870349
Jarque-Bera	99.11670	163.1269	82.20405	96.95848	45.57559	23.54754
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000008
Sum	94335.00	39497.98	54837.02	531.2340	75024.47	416.3980
Sum Sq. Dev.	19980755	2327158.	8902871.	1788.901	28530244	1015.874
Observations	132	132	132	132	132	132

The descriptive statistics provide useful preliminary insights into the behaviour of FAAC disbursements, liquidity conditions, and exchange rate dynamics over the sample period. Aggregate FAAC allocations averaged ₦714.7 billion monthly, with substantial dispersion reflected in a standard deviation of ₦390.5 billion, underscoring the inherent volatility of oil-driven fiscal revenues. Disaggregation reveals that subnational governments (states and local governments) received a larger share of FAAC allocations on average than the federal government, accounting for ₦415.4 billion compared to ₦299.2 billion, respectively. Importantly, the variability of subnational FAAC allocations is markedly higher than that of federal allocations, consistent with the recurrent fiscal shocks associated with oil revenue cycles and derivation payments.

Banking system liquidity exhibits significant volatility over the sample period, as captured by a wide range between a minimum of −6.5 and a maximum of 8.1 (in logged terms), reflecting alternating periods of excess liquidity and liquidity tightening. The exchange rate series displays the expected pattern of managed stability in earlier years and sharp depreciation episodes in later years, while the exchange rate volatility series confirms pronounced clustering, with a maximum of nearly 11 per cent during periods of FX regime adjustment. The Jarque–Bera statistics indicate non-normality across all variables, which is typical in macro-financial time series and further justifies the choice of dynamic modelling techniques such as ARDL rather than static linear regressions.

Short-Run Liquidity Effects of FAAC Disbursements

Model 1a: Impact of Total FAAC Disbursements on Banking System Liquidity

Short-run result

Variable	Coefficient	t-statistics	Prob.
BSL(-1)	0.432353	5.306564	0.0000
LOG(AGGFAAC)	-0.647332	1.565614	0.1199
LOG(AGGFAAC(-1))	3.592187	-0.035548	0.9717
LOG(M3)	-0.032873	-2.758551	0.0067
LOG(EXC)	-2.680997	1.565614	0.1199

The short-run ARDL (1,1,0,0) results show that the current banking system liquidity is strongly influenced by its own past level, as reflected in the positive and highly significant coefficient on BSL(−1) of 0.432. This implies that liquidity conditions exhibit partial adjustment: roughly 43 per cent of the previous month's liquidity level is carried into the current month. Economically, this points to inertia in the liquidity process and confirms that liquidity conditions do not adjust instantaneously.

The contemporaneous coefficient on LOG(AGGFAAC) is negative (−0.647), indicating that a one-per-cent increase in aggregate FAAC in the current month is associated with a 0.65 per cent reduction in banking system liquidity in the same month. Although statistically insignificant, this coefficient suggests that aggregate FAAC inflows may not immediately translate into liquidity expansion, likely because funds pass through administrative layers, intergovernmental redistribution, and initial sterilisation. Crucially, the lagged level of aggregate FAAC enters with a positive coefficient of 3.592. This indicates that a one-per-cent increase in aggregate FAAC in the previous period raises current banking system liquidity by about 3.6 per cent. This is a central result of the model. It shows that aggregate FAAC is inherently liquidity-expanding, but its effect materialises with a lag rather than contemporaneously. Fiscal inflows, therefore, accumulate into liquidity as funds are spent, deposited, and circulated through the banking system over time.Broad money supply (M3) has a negligible effect, confirming that short-run liquidity dynamics are dominated by fiscal flows rather than by changes in monetary aggregates. The exchange rate enters with a negative and statistically significant coefficient of −2.681, implying that a one-per cent depreciation of the naira reduces banking system liquidity by about 2.7 per cent in the short run. This reflects liquidity absorption associated with FX interventions and sterilisation efforts during periods of currency pressure.

Long-run result (Bound Testing Approach)

Variable	Coefficient	t-statistics	Prob.
LOG(AGGFAAC)	5.187830	1.702952	0.0910
LOG(M3)	-0.057911	-0.035545	0.9717
LOG(EXC)	-4.723002	-3.050861	0.0028

Test Statistics	Value	K	Significance	I(0)	I(1)
F-ststistics	12.16769	3	10%	2.01	3.10
			5%	2.45	3.63
			2.5%	2.87	4.16
			1%	3.42	4.84

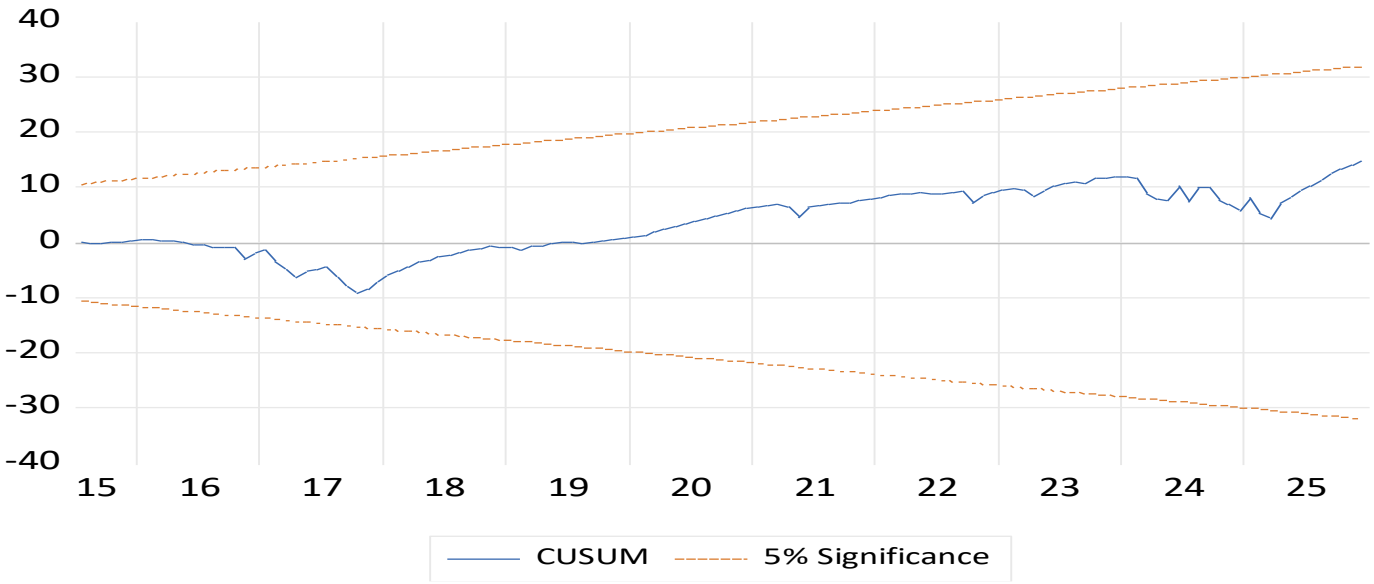
There is a long run. Liquidity persistence remains strong, as shown by the positive and significant coefficient on BSL(−1) of 0.421. The contemporaneous coefficient on LOG(SNFAAC) is positive but near zero, indicating that immediate liquidity responses to subnational FAAC are weak. However, the lagged level of subnational FAAC enters with a sizeable positive coefficient of 3.549, implying that a one-per cent increase in subnational FAAC in the previous period raises current liquidity by about 3.5 per cent. Exchange rate depreciation has a strong negative effect (−3.816), underscoring the sterilisation burden associated with subnational fiscal spending. M3 again plays no significant role.

ECT

Variable	Coefficient	t-statistics	Prob.
DLOG(AGGFAAC)	-0.647332	-0.297100	0.7669
CointEq(-1)	-0.567647	-7.059008	0.0000

The error-correction term, CointEq(−1) = −0.568, is negative, large, and highly significant. This indicates that about 57 percent of any disequilibrium between liquidity and its long-run determinants is corrected within one month. This confirms a stable adjustment process in which monetary policy actively counteracts deviations caused by fiscal inflows, though without eliminating the long-run liquidity impact of sustained FAAC disbursements.

Stability test of the model



CUSUM-based stability tests indicate that the parameters of the model remain stable over the sample period. This suggests that the aggregate FAAC–liquidity relationship is structural and not driven by temporary shocks or policy regime changes.

Model 1b: Impact of FGN FAAC Disbursements on Banking System Liquidity

Short-run result

Variable	Coefficient	t-statistics	Prob.
BSL(-1)	0.430872	5.318464	0.0000
LOG(FGFAAC)	-0.707719	-0.342419	0.7326
LOG(FGFAAC(-1))	3.529300	1.764071	0.0801
LOG(M3)	0.004855	0.005684	0.9955
LOG(EXC)	-2.229473	-2.603674	0.0103

Lung Run Bound Test

Variable	Coefficient	t-statistics	Prob.
LOG(AGGFAAC)	4.957726	1.841995	0.0678
LOG(M3)	0.008531	0.005684	0.9955
LOG(EXC)	-3.917349	-2.841929	0.0052

The coefficient on BSL(−1) is positive (0.431) and highly significant, confirming liquidity persistence similar to Model 1a. The contemporaneous coefficient on LOG(FGFAAC) is negative (−0.708), suggesting that a one-

per-cent increase in federal FAAC initially reduces liquidity slightly, although the effect is weak. This likely reflects the Treasury Single Account framework and delayed federal spending. The lagged level of federal FAAC is positive, with a coefficient of 3.529, implying that a one-per-cent increase in federal FAAC in the previous period raises current liquidity by about 3.5 per cent. This confirms that federal FAAC inflows are liquidity-expanding, but mainly through delayed transmission. The exchange rate exerts a negative and significant effect (−2.229), while M3 remains irrelevant.

Long-run result (Bound Testing Approach) – there is long run

Test Statistics	Value	K	Significance	I(0)	I(1)
F-ststistics	12.16769	3	10%	2.01	3.10
			5%	2.45	3.63
			2.5%	2.87	4.16
			1%	3.42	4.84

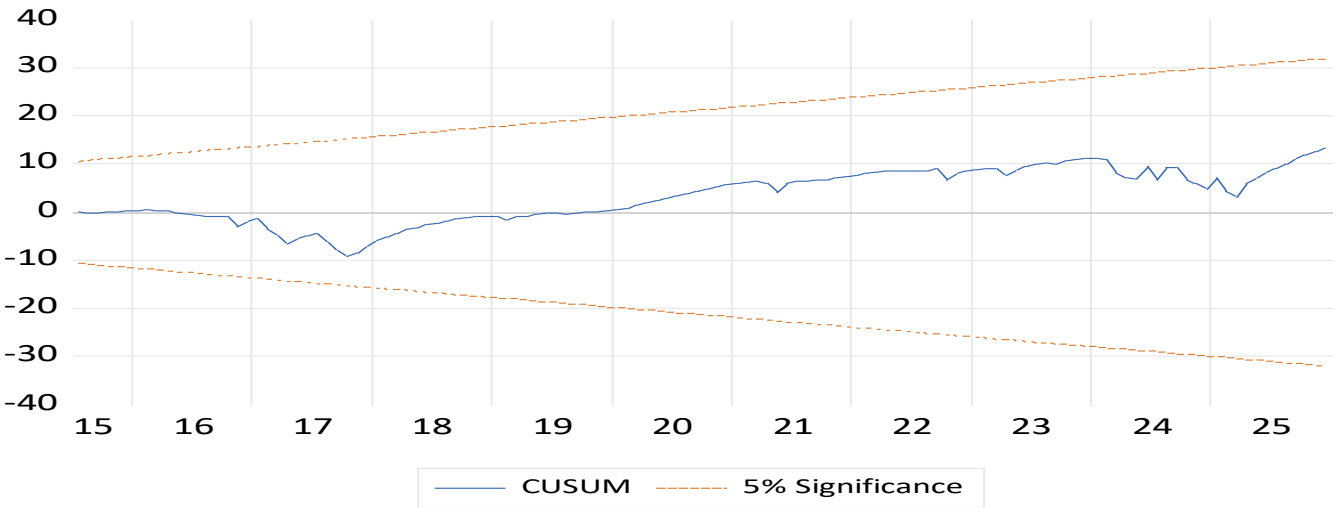
The bounds test confirms cointegration. In the long run, the elasticity of liquidity with respect to federal FAAC is 4.958, meaning that a sustained one-per-cent increase in federal FAAC raises equilibrium liquidity by nearly 5 per cent. This effect is positive and economically large, though slightly smaller than in the aggregate FAAC model.

ECT

Variable	Coefficient	t-statistics	Prob.
DLOG(AGGFAAC)	-0.707719	-0.378487	0.7057
CointEq(-1)	-0.569128	-7.118627	0.0000

The error-correction coefficient (−0.569) is highly significant, indicating rapid adjustment. Liquidity deviations induced by federal FAAC disbursements are corrected swiftly, suggesting that federal fiscal flows are relatively easier for monetary policy to absorb. Stability tests confirm parameter constancy, indicating a robust and predictable relationship between federal FAAC and liquidity.

Stability test of the model



Stability tests confirm parameter constancy, indicating a robust and predictable relationship between federal FAAC and liquidity.

Model 1C: Impact of Subnational FAAC Disbursements on Banking System Liquidity

Short Run Result

Variable	Coefficient	t-statistics	Prob.
BSL(-1)	0.421070	5.137911	0.0000
LOG(FGFAAC)	0.017941	0.006725	0.9946
LOG(FGFAAC(-1))	3.548696	1.449322	0.1497
LOG(M3)	0.436652	0.663688	0.5081
LOG(EXC)	-3.816435	-2.896204	0.0045

Liquidity persistence remains strong, as shown by the positive and significant coefficient on BSL(−1) of 0.421. The contemporaneous coefficient on LOG(SNFAAC) is positive but near zero, indicating that immediate liquidity responses to subnational FAAC are weak. However, the lagged level of subnational FAAC enters with a sizeable positive coefficient of 3.549, implying that a one-percent increase in subnational FAAC in the previous period raises current liquidity by about 3.5 percent. Exchange rate depreciation has a strong negative effect (−3.816), underscoring the sterilisation burden associated with subnational fiscal spending. M3 again plays no significant role.

Long run result (Bound Testing Approach) – there is long run

Variable	Coefficient	t-statistics	Prob.
LOG(AGGFAAC)	6.160742	1.975456	0.0504
LOG(M3)	0.754240	0.668171	0.5052
LOG(EXC)	-6.592222	-3.209801	0.0017

Test Statistics	Value	K	Significance	I(0)	I(1)
F-ststistics	12.50716	3	10%	2.01	3.10
			5%	2.45	3.63
			2.5%	2.87	4.16
			1%	3.42	4.84

The bounds test confirms cointegration, and the long-run coefficient on subnational FAAC is 6.161, the largest among all models. This implies that a sustained one-percent increase in subnational FAAC raises equilibrium liquidity by more than 6 percent, identifying subnational fiscal operations as the dominant long-run source of liquidity expansion in Nigeria.

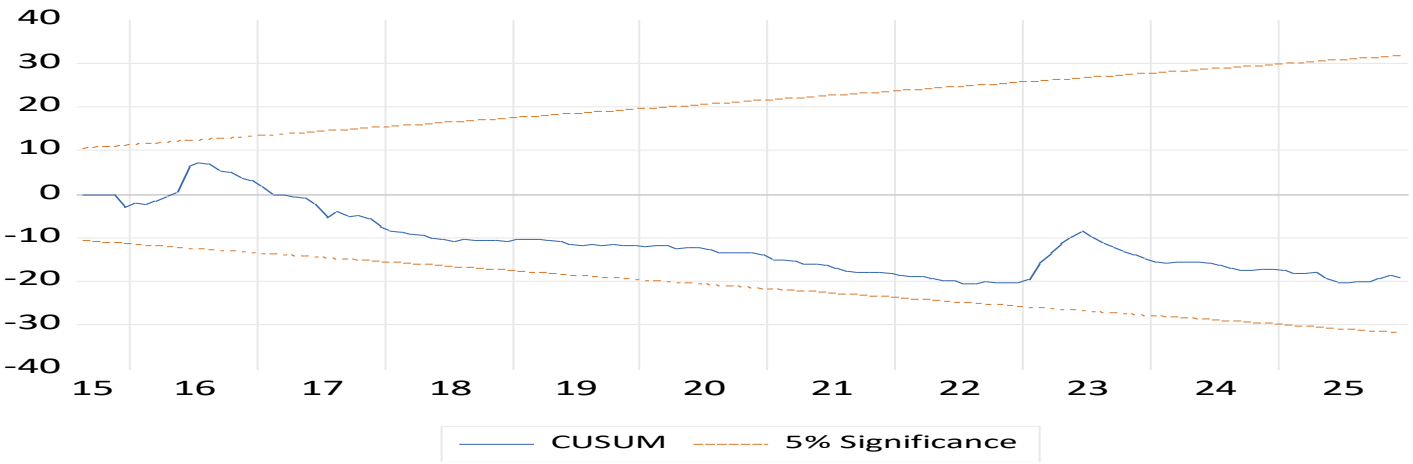
ECT

Variable	Coefficient	t-statistics	Prob.
DLOG(SNFAAC)	0.017941	0.007585	0.9940
CointEq(-1)	-0.578930	-7.156802	0.0000

The error-correction term (−0.579) is highly significant, confirming stability. While liquidity adjusts quickly, repeated subnational FAAC inflows continuously rebuild liquidity, placing sustained pressure on monetary

management. CUSUM tests confirm stability, indicating that the subnational FAAC–liquidity relationship is systematic rather than episodic.

Stability test of the model



Model 2a: Impact of Total FAAC Disbursements on Exchange rate Volatility

Short run result

Variable	Coefficient	t-statistics	Prob.
EXCV(-1)	0.933912	27.69945	0.0000
LOG(AGGFAAC)	1.107026	2.137020	0.0345
LOG(M3)	0.448738	2.148232	0.0336
BSL	0.030737	1.607066	0.1106
EXCV(-1)	0.933912	27.69945	0.0000

The short-run ARDL(1,1,0,0,0) results for Model 2a show that exchange rate volatility in Nigeria is highly persistent. The coefficient on EXCV(−1) is 0.934, highly statistically significant, indicating that nearly 93 percent of the previous month's volatility is carried forward into the current month. This strong persistence confirms the presence of volatility clustering in the FX market, a common feature of emerging market currencies, and implies that shocks to the exchange rate tend to have prolonged effects.

Aggregate FAAC enters the volatility equation with a positive and statistically significant coefficient of 1.107. This implies that a one-per-cent increase in aggregate FAAC disbursements raises exchange rate volatility by about 1.1 per cent in the short run. This is a key result. It indicates that aggregate fiscal inflows, once disbursed, exert measurable pressure on the foreign exchange market. The mechanism is intuitive: FAAC-driven liquidity injections increase aggregate demand, import demand, and FX transactions, thereby amplifying short-term exchange rate fluctuations.

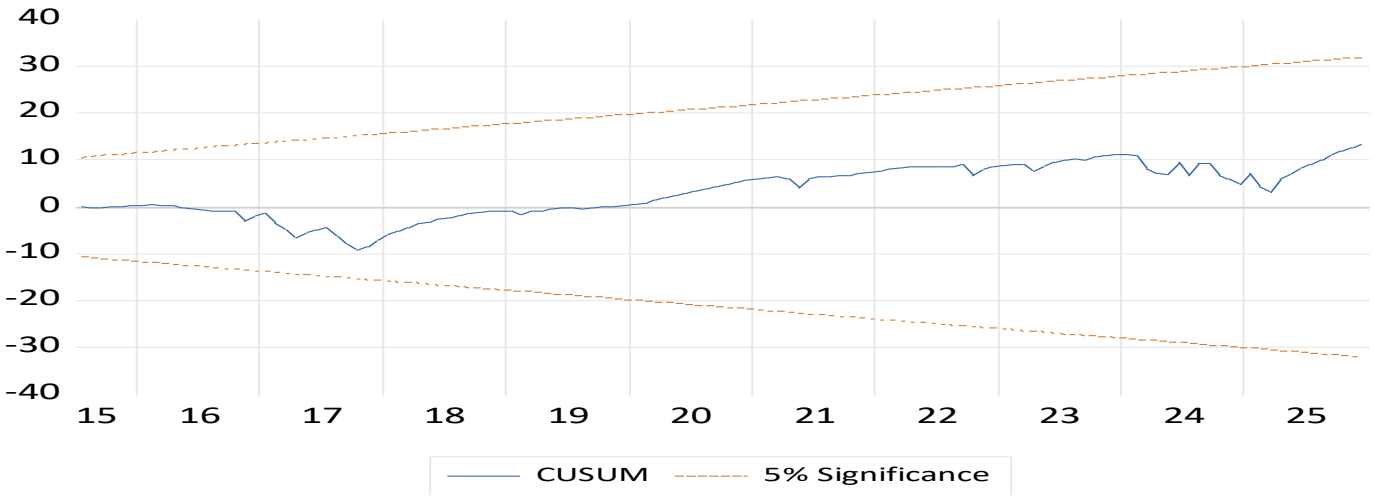
Money supply (M3) also enters positively and significantly, with a coefficient of 0.449, suggesting that a one-per cent increase in broad money raises exchange rate volatility by roughly 0.45 percent. This reinforces the liquidity-volatility channel, whereby excess liquidity—whether fiscal or monetary—feeds into FX demand pressures. Banking system liquidity (BSL) enters with a positive coefficient of 0.031, implying that higher liquidity is associated with higher exchange rate volatility, although the effect is not statistically significant at conventional levels. Economically, the positive sign still suggests that liquidity expansion is volatility-enhancing, even if the marginal effect is moderate. Inflation also enters positively, with a coefficient of 0.026, indicating that rising price pressures are associated with greater FX volatility. Although marginally

insignificant, the sign is consistent with expectations: higher inflation weakens confidence in the domestic currency and increases exchange rate instability.

Test Statistics	Value	K	Significance	I(0)	I(1)
F-ststistics	2.440883	4	10%	1.90	3.01
			5%	2.26	3.48
			2.5%	2.62	3.90
			1%	3.07	4.44

Long run result (Bound Testing Approach) – no long run. Thus, aggregate faac effect on exchange rate volatility short-lived. Since F-statistic value is not greater than the lower an upper limit value. The stability tests indicate that the estimated coefficients remain stable over the sample period. This suggests that the short-run relationship between aggregate FAAC, liquidity, and exchange rate volatility is consistent across different policy regimes and oil price cycles.

Stability test of the model



Stability tests confirm parameter constancy, indicating a robust and predictable relationship between federal FAAC and naira volatility.

Model 2b: Impact of FGN FAAC Disbursements on Exchange rate Volatility

Short-run result

Variable	Coefficient	t-statistics	Prob.
EXCV(-1)	0.934623	27.72156	0.0000
LOG(AGGFAAC)	0.820552	1.825029	0.0704
LOG(M3)	0.440355	2.324614	0.0217
BSL	0.031445	1.645657	0.1023
INF	0.019637	1.217328	0.2258

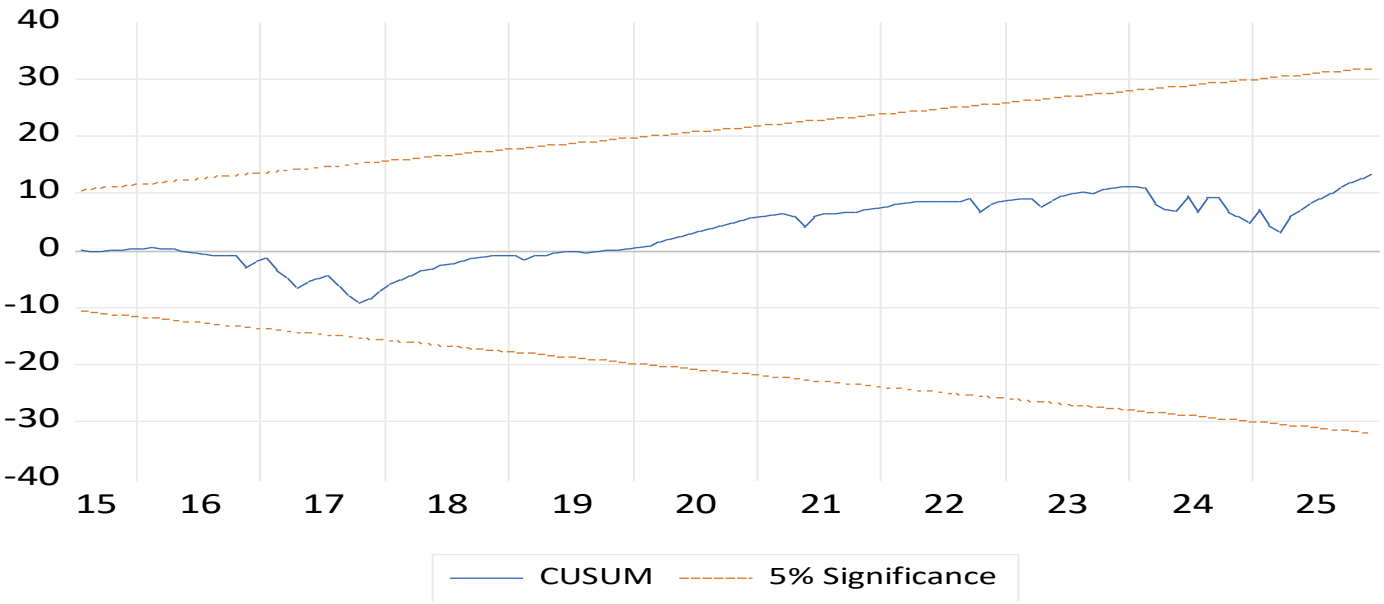
Model 2b again confirms strong persistence in exchange rate volatility. The coefficient on EXCV(−1) is 0.935, indicating that volatility shocks are highly persistent and fade only gradually. Federal FAAC enters with a positive coefficient of 0.821, which is marginally significant. This implies that a one-per cent increase in federal

FAAC disbursements raises exchange rate volatility by about 0.82 percent in the short run. The effect is smaller than that observed for aggregate FAAC, indicating that federal fiscal operations generate volatility pressures, but to a lesser extent. Money supply continues to play a significant role in volatility dynamics. The coefficient on M3 is 0.440, indicating that monetary expansion contributes meaningfully to short-run FX instability. Banking system liquidity enters positively (0.031), reinforcing the liquidity-volatility linkage, although the effect remains modest. Inflation is positive but statistically insignificant, suggesting that price pressures play a secondary role relative to liquidity channels in driving short-run volatility.

Test Statistics	Value	K	Significance	I(0)	I(1)
F-ststistics	2.649155	4	10%	1.90	3.01
			5%	2.26	3.48
			2.5%	2.62	3.90
			1%	3.07	4.44

Long run result (Bound Testing Approach) no long run also…. Thus, FGN faac effect on exchange rate volatility short-lived. Since Fstatistic value is not greater than the lower an upper limit values As in Model 2a, the bounds test does not establish cointegration. This implies that federal FAAC disbursements do not have a long-run impact on exchange rate volatility. Federal fiscal inflows therefore generate short-term FX pressures that dissipate over time and do not permanently alter exchange rate dynamics. Stability tests confirm parameter constancy, indicating that the short-run volatility effects of federal FAAC are stable and predictable across the sample period.

Stability test of the model



Stability tests confirm parameter constancy, indicating a robust and predictable relationship between federal FAAC and naira volatility.

Model 2C: Impact of Subnational FAAC Disbursements on Exchange rate Volatility

Short run result

Variable	Coefficient	t-statistics	Prob.
EXCV(-1)	0.929210	27.50544	0.0000

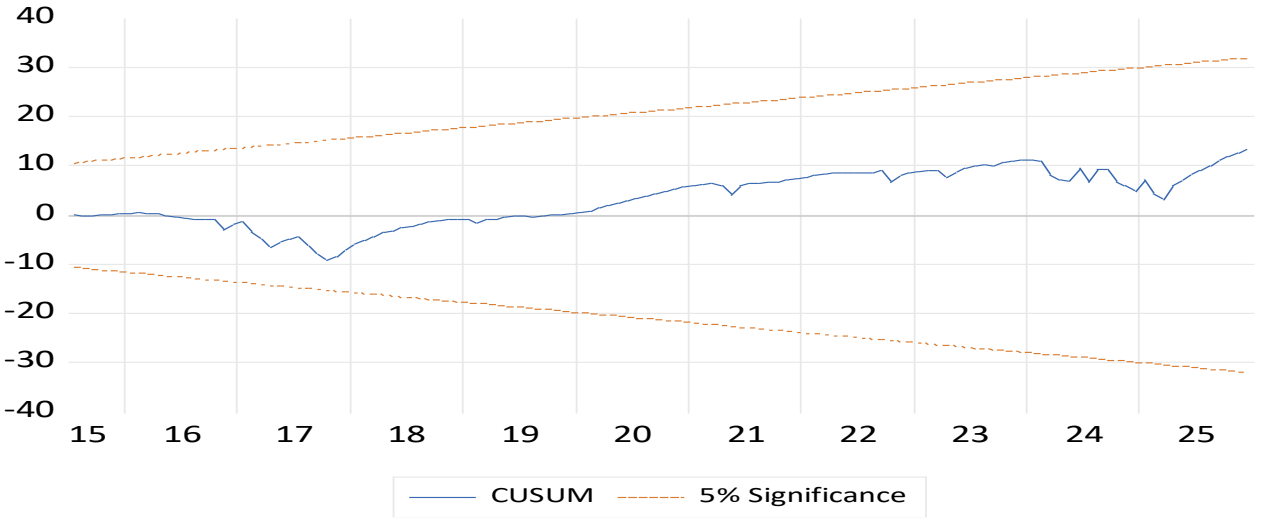
LOG(AGGFAAC)	1.257617	2.256862	0.0258
LOG(M3)	0.295899	1.907579	0.0587
BSL	0.032055	1.657527	0.0999
INF	0.036274	2.147581	0.0337

Model 2c produces the strongest short-run volatility effects among the three FAAC channels. Exchange rate volatility remains highly persistent, with EXCV (−1) = 0.929, confirming that FX shocks are long-lasting. Subnational FAAC enters with a positive and statistically significant coefficient of 1.258, implying that a one-per cent increase in subnational FAAC disbursements raises exchange rate volatility by about 1.26 per cent in the short run. This is the largest FAAC-related volatility effect across all models and highlights the dominant role of subnational fiscal operations in transmitting liquidity shocks to the FX market. Money supply enters positively with a coefficient of 0.296, while banking system liquidity again has a positive coefficient (0.032), confirming that liquidity expansion—particularly when driven by subnational fiscal spending—feeds directly into FX volatility. Inflation enters with a positive and statistically significant coefficient of 0.036, indicating that inflationary pressures amplify exchange rate instability in the presence of strong fiscal injections.

Test Statistics	**Value**	**K**	**Significance**	**I(0)**	**I(1)**
F-ststistics	2.260886	4	10%	1.90	3.01
			5%	2.26	3.48
			2.5%	2.62	3.90
			1%	3.07	4.44

Long-run result (Bound Testing Approach) – no long-run at 5% level of significance. Since F statistic value is not greater than the lower and upper limit values. The bounds test again fails to establish a long-run relationship. This implies that subnational FAAC disbursements do not permanently increase exchange rate volatility, even though their short-run impact is the strongest. Exchange rate volatility, therefore, responds to flow-type fiscal shocks, not to long-term structural fiscal positions. Stability tests indicate that the estimated volatility relationships are stable over time, confirming that the strong short-run impact of subnational FAAC on exchange rate volatility is a recurring and systematic feature of Nigeria's macroeconomic structure.

Stability test of the model



Stability tests confirm parameter constancy, indicating a robust and predictable relationship between federal FAAC and naira volatility.

Synthesis of Exchange Rate Volatility Results

Across Models 2a–2c, exchange rate volatility in Nigeria is characterised by strong persistence and short-run sensitivity to fiscal disbursements. All FAAC channels increase exchange rate volatility in the short run, but subnational FAAC exerts the largest and most statistically robust effect, followed by aggregate FAAC and then federal FAAC. None of the FAAC measures exhibits a long-run effect on volatility, indicating that FAAC-induced FX pressures are transitory but frequent.Taken together with the liquidity results, these findings suggest that exchange rate volatility in Nigeria is not driven by long-run fiscal fundamentals, but by the timing, composition, and absorption of FAAC-induced liquidity shocks, with subnational fiscal operations emerging as the primary transmission channel.

Long-Run Impact on Naira Volatility

The bounds test results across Models 2a, 2b, and 2c provide a clear and internally consistent conclusion: FAAC disbursements do not exert a long-run effect on exchange rate volatility in Nigeria. In all three specifications—aggregate FAAC, federal government FAAC, and subnational FAAC—the calculated F-statistics fall below the lower and upper critical bounds at conventional significance levels. This implies that exchange rate volatility is not cointegrated with FAAC disbursements, banking system liquidity, money supply, inflation, and the exchange rate level.

This absence of cointegration indicates that while FAAC disbursements generate short-run volatility pressures, they do not permanently alter the underlying volatility regime of the naira. Exchange rate volatility therefore behaves as a flow-driven variable, responding to transient liquidity shocks and demand pressures rather than to persistent fiscal fundamentals. From a macroeconomic perspective, this suggests that FAAC disbursements introduce episodic but reversible FX pressures, which dissipate once liquidity conditions normalise and monetary operations absorb excess funds.

This result is particularly important because it distinguishes Nigeria's exchange rate volatility from structural volatility driven by long-run fiscal imbalances. Instead, naira volatility appears to be driven by timing, composition, and absorption of fiscal inflows, rather than by the long-term size of fiscal allocations. Consequently, volatility episodes should be interpreted as liquidity-cycle phenomena rather than indicators of fiscal unsustainability.

Interpretation of Results in the Nigerian Context

The combined liquidity and exchange rate volatility results align closely with Nigeria's fiscal-monetary institutional structure. FAAC disbursements represent large and highly concentrated fiscal injections, largely financed by oil revenues and distributed every month. These injections constitute exogenous liquidity shocks to the domestic financial system, particularly in an economy with shallow financial markets and limited fiscal smoothing mechanisms.

The liquidity models demonstrate that FAAC disbursements—especially subnational allocations—have strong lagged and long-run effects on banking system liquidity. This reflects the spending behaviour of government entities, particularly at the state and local levels, where FAAC receipts are rapidly monetised through salary payments, recurrent expenditures, and procurement. The lagged nature of the effects indicates that liquidity pressure builds gradually as funds enter the banking system rather than immediately upon disbursement.

In contrast, the exchange rate volatility results show that FAAC disbursements do not affect volatility permanently. Instead, volatility increases temporarily following fiscal injections, driven by higher FX demand for imports, debt service, and portfolio adjustments. The strong persistence of volatility, captured by the large lagged dependent variable coefficients, implies that once volatility increases, it tends to remain elevated for several months. However, the absence of a long-run relationship suggests that monetary policy actions, FX market interventions, and liquidity sterilisation eventually restore stability.

The stronger short-run volatility effects associated with subnational FAAC highlight the role of decentralised fiscal operations in transmitting liquidity shocks to the FX market. Subnational governments typically have weaker cash-management frameworks, limited savings buffers, and higher marginal propensities to spend. As a result, their FAAC receipts translate more directly into FX demand and price instability. Federal FAAC, by contrast, generates weaker volatility effects, reflecting the stabilising role of the Treasury Single Account and smoother expenditure execution at the federal level. Overall, the results portray Nigeria's exchange rate volatility as the outcome of recurrent fiscal liquidity cycles interacting with a managed FX regime, rather than of long-run fiscal imbalances.

Comparison with Existing Empirical Studies

The findings of this study are broadly consistent with, and extend, the existing empirical literature on fiscal-monetary interactions and exchange rate dynamics in resource-dependent economies. Earlier studies on FAAC and macroeconomic performance in Nigeria have shown that fiscal allocations significantly influence liquidity conditions and aggregate demand (Ojide & Ogbodo, 2015; Oyinlola & Adedeji, 2021). The present study confirms this result by showing strong long-run effects of FAAC disbursements on banking system liquidity, particularly at the subnational level.

In line with the fiscal-liquidity literature, the results corroborate findings from Ilzetzki et al. (2013) and Duffie and Krishnamurthy (2016), who show that government cash flows generate short-term liquidity volatility but are often neutralised over time through monetary operations. The absence of a long-run relationship between FAAC and exchange rate volatility is also consistent with studies that find exchange rate volatility in emerging economies to be driven primarily by short-run shocks rather than long-run fiscal fundamentals.

The stronger volatility effects associated with subnational FAAC support the arguments of fiscal decentralisation and soft budget constraint theories (Qian & Roland, 1998; Gemmell et al., 2013), which emphasise the macroeconomic externalities of decentralised spending. Unlike earlier Nigerian studies that focus mainly on aggregate FAAC, this study's disaggregated approach provides new empirical evidence that the composition of fiscal flows matters more than their aggregate size for liquidity and FX stability.

Implications for Liquidity Management and Foreign Exchanges Stability

The empirical results have important implications for liquidity management and exchange rate stability in Nigeria. First, since FAAC disbursements exert strong and persistent effects on banking system liquidity, traditional monetary aggregates alone are insufficient indicators for liquidity forecasting. Effective liquidity management must explicitly incorporate the timing and distribution of FAAC inflows, particularly subnational allocations.

Second, the short-run impact of FAAC disbursements on exchange rate volatility implies that FX stability cannot be achieved solely through exchange rate policy instruments. Instead, it requires close fiscal-monetary coordination, especially around FAAC disbursement cycles. Anticipatory sterilisation and enhanced liquidity forecasting around FAAC payment windows could substantially reduce episodic FX volatility. Third, the prominence of subnational FAAC in driving both liquidity expansion and FX volatility highlights the need for improved cash-management practices at the state and local government levels. Without addressing subnational fiscal behaviour, monetary policy will continue to face recurrent liquidity shocks that complicate FX management.

Policy Implications, recommendations, and conclusion

Policy Implications

This study examined the effects of Federation Account Allocation Committee (FAAC) disbursement cycles on banking system liquidity and exchange rate volatility in Nigeria using monthly data from January 2015 to December 2025 within an Autoregressive Distributed Lag (ARDL) framework. The findings provide strong

evidence that FAAC disbursements constitute an important source of liquidity creation in the Nigerian economy, with their effects transmitted primarily through lagged rather than contemporaneous channels. The existence of a stable long-run relationship between FAAC allocations and banking system liquidity highlights the enduring influence of fiscal operations on domestic monetary conditions.

The study further finds that the liquidity effects of FAAC disbursements are not uniform across tiers of government. Subnational allocations exert the largest and most persistent impact on banking system liquidity, reflecting their relatively higher spending rates and limited cash-management buffers. Consequently, the composition of FAAC transfers is shown to be as important as their aggregate size in shaping macroeconomic outcomes.

With respect to exchange rate dynamics, the results indicate that FAAC disbursements significantly amplify naira volatility in the short run but do not exert a permanent long-run effect. This suggests that exchange rate pressures associated with FAAC releases are largely liquidity-driven and episodic rather than structural. The evidence therefore points to recurrent fiscal liquidity cycles, particularly those originating from subnational spending activities, as an important source of short-term foreign exchange market instability.

The study demonstrates that FAAC disbursements are an important source of liquidity expansion in Nigeria, with significant implications for monetary management and exchange-rate stability. FAAC releases should therefore be treated as major liquidity events and explicitly incorporated into the CBN's liquidity forecasting and policy framework.

The findings also show that subnational allocations exert the strongest influence on banking system liquidity and short-run naira volatility. This highlights the need for improved cash-management practices, expenditure smoothing, and stronger fiscal discipline at the state and local government levels.

RECOMMENDATIONS

Strengthen Fiscal–Monetary Coordination

Given the significant liquidity effects of FAAC disbursements, the Central Bank of Nigeria (CBN), the Federal Ministry of Finance, and FAAC should institutionalize a framework for real-time information sharing and coordinated liquidity management. Regular exchange of disbursement schedules and revenue projections would improve monetary policy forecasting and enable proactive liquidity management before and after major FAAC releases**.**

Adopt FAAC-Adjusted Liquidity Forecasting Frameworks

The CBN should explicitly incorporate FAAC disbursement cycles into its liquidity forecasting models. Since the study finds that liquidity pressures emerge predominantly through lagged channels, incorporating expected FAAC flows into liquidity projections would enhance the timing and effectiveness of open market operations and other monetary policy interventions**.**

Implement Pre-emptive Sterilization around Disbursement Periods

To mitigate recurrent post-disbursement liquidity surges, the CBN should intensify the use of sterilization instruments during periods of large FAAC allocations. Timely liquidity-mopping operations would reduce excess reserves in the banking system and limit spillovers to inflation and foreign exchange market pressures.

Improve Subnational Cash Management Practices

Given that state and local government allocations exert the strongest influence on liquidity and exchange-rate volatility, subnational governments should adopt more effective cash-management frameworks. This includes strengthening treasury management systems, improving expenditure planning, and reducing the tendency for rapid spending immediately following FAAC receipts.

Promote Fiscal Stabilization Mechanisms

States should be encouraged to establish contingency and stabilization funds that allow a portion of FAAC receipts to be saved during periods of high revenue inflows. Such mechanisms would smooth expenditure patterns, reduce abrupt liquidity injections into the economy, and enhance fiscal resilience.

Deepen Monitoring of Fiscal Liquidity Cycles and FX Market Developments

Policymakers should strengthen monitoring of the relationship between FAAC releases, banking system liquidity, and foreign exchange demand. Early warning indicators linking disbursement cycles to market pressures would support more timely policy responses and help reduce short-term naira volatility.

CONCLUSION

This study examined the effects of Federation Account Allocation Committee (FAAC) disbursement cycles on banking system liquidity and exchange rate volatility in Nigeria using monthly data from January 2015 to December 2025 within an Autoregressive Distributed Lag (ARDL) framework. The findings provide strong evidence that FAAC disbursements constitute an important source of liquidity creation in the Nigerian economy, with their effects transmitted primarily through lagged rather than contemporaneous channels. The existence of a stable long-run relationship between FAAC allocations and banking system liquidity highlights the enduring influence of fiscal operations on domestic monetary conditions.

The study further finds that the liquidity effects of FAAC disbursements are not uniform across tiers of government. Subnational allocations exert the largest and most persistent impact on banking system liquidity, reflecting their relatively higher spending rates and limited cash-management buffers. Consequently, the composition of FAAC transfers is shown to be as important as their aggregate size in shaping macroeconomic outcomes.

With respect to exchange rate dynamics, the results indicate that FAAC disbursements significantly amplify naira volatility in the short run but do not exert a permanent long-run effect. This suggests that exchange rate pressures associated with FAAC releases are largely liquidity-driven and episodic rather than structural. The evidence therefore points to recurrent fiscal liquidity cycles, particularly those originating from subnational spending activities, as an important source of short-term foreign exchange market instability.

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